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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/770,035	01/25/2001	Essam Sourour	4015-858	5212

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RALEIGH, NC 27602

EXAMINER

DAVIS, TEMICA M

ART UNIT	PAPER NUMBER
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2681

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/770,035

Applicant(s)

SOUROUR ET AL.

Examiner

Temica M. Davis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17-26 is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 9-16 is/are rejected.
- 7) ☒ Claim(s) 3-8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed June 24, 2002 have been fully considered but they are not persuasive.

Applicant argues that because Valentine fails to disclose a dual mode amplifier, it cannot be combined with Sanders to meet the limitation "offset an expected phase shift imparted to second transmit signal by said amplifier when operating in said second mode".

The examiner, however, disagrees. The primary reference, Sanders, discloses the limitation of an amplifier that can operate in two modes (i.e., digital and analog) (col. 8, lines 32-39). Sanders also discloses a phase shifter for effecting desired signal transmission for first and second modes (col. 8, lines 12-15).

Valentine was only brought in to show that phase shift could be compensated for in an amplifier chain (i.e., applied curve fit routine) in order to obtain optimal channel performance. One of ordinary skill in the art, at the time of invention, would have been able to implement such phase compensation shown in Valentine to any system having amplifier circuitry (single mode, dual mode, etc.) with a phase shift introduced in the signals. Such implementation would only require routine skill. As such, Sanders, taken in reasonable combination with Valentine, meets the claimed limitations of the present invention.

Based on the above remarks, the claims stand rejected as set forth below.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2 and 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanders in view of Valentine.

Regarding claim 1 Sanders discloses a transmitter (120; figures 2 and 3) comprising a modulator (236A/236B) to generate a modulated output signal responsive to at least one baseband information signal col. 7, line 65-col. 8, line 3); an amplifier to generate a transmit signal based on amplifying said modulated output signal, said amplifier having at least first and second operating modes (col. 8, lines 2-3 and col. 8, lines 32-39); and a phase shifter for effecting desired signal transmission for the first and second operating modes (col. 8, lines 12-15).

Sanders, however, fails to disclose a phase compensator to selectively impart a compensating phase shift to said at least one baseband information signal to offset an expected phase shift imparted to said transmit signal by said amplifier when operating in said second mode.

In a similar field of endeavor, Valentine discloses a radio communication device. Valentine further discloses a predistortion circuit that predistorts baseband signals in an amplifier chain so that distortion is cancelled. A baseband processor compares undistorted I and Q signals with fed back signals and obtains information related to the

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phase changes introduced in the amplified signals in order to predistort the baseband signal (col. 3, lines 10-42).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify Sanders with the teachings of Valentine for the purpose of reducing channel interference and obtain optimal channel performance (Valentine, col. 2, lines 23-36 and col. 3, lines 18-24).

Regarding claim 2, the combination of Sanders and Valentine discloses the transmitter of claim 1 wherein said amplifier comprises a multi-stage power amplifier with at least one selectively enabled amplifier stage, that is selectively enabled to switch between said first and second operating modes (Sanders, col. 8, lines 16-39).

Regarding claim 12, the combination of Sanders and Valentine discloses the transmitter of claim 1 and further discloses a memory to store a reference value representative of said expected phase shift imparted to said transmit signal by said amplifier when operating in said second mode, said reference value used by said phase compensator to set said compensation term (Valentine, col. 3, lines 38-42).

Regarding claim 13, the combination of Sanders and Valentine discloses the transmitter of claim 1 wherein said phase compensator comprises a portion of a digital processor executing program instructions to effect phase compensation of said at least one baseband information signal (Valentine, col. 3, lines 34-42).

Regarding claim 14, the combination of Sanders and Valentine discloses the transmitter of claim 1 as described above, and further discloses the transmitter implemented in mobile station (Sanders, col. 3, lines 50-58) or in a general radio

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communication apparatus (Valentine, col. 1, lines 4 and 5). Sanders or Valentine, however, fails to disclose specifically disclose wherein the transmitter is implemented in a base station.

The examiner contends, however, that at the time of invention, such a feature would have been obvious to a person of ordinary skill in the art since base stations are known to transmit signals, wherein such signals may need to be amplified in order to ensure the transmitted signal reaches its destination.

Regarding claim 15, the combination of Sanders and Valentine discloses the transmitter of claim 1 wherein said transmitter comprises a mobile terminal transmitter forming a portion of a mobile terminal, said mobile terminal supporting wireless communication in a mobile communication environment (Sanders, col. 3, lines 50-58).

Regarding claim 16, the combination of Sanders and Valentine discloses the transmitter of claim 15 wherein said mobile terminal further comprises a processor to control said phase compensator (Valentine, col. 3, lines 38-42).

4. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanders and Valentine as applied to claims 1, 2 and 12-16 above, and further in view of Malec, U.S. Patent No. 5,150,072.

Regarding claim 9, the combination of Sanders and Valentine discloses the transmitter of claim 1 as described. The combination, however, fails to disclose a test circuit to determine said expected phase shift imparted to said transmit signal by said amplifier when operating in said second mode.

In a similar field of endeavor Malec discloses distortion correction for an amplifier system. Malec further discloses a test circuit to determine said expected phase shift imparted to said transmit signal by said amplifier when operating in a mode (col. 7, line 60-col. 8, line 12).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the combination of Sanders and Valentine with the test circuit used in Malec for the purpose of ensuring that the amplifier circuitry will operate at optimum performance based on test values.

Regarding claim 10, the combination of Sanders, Valentine and Malec discloses the transmitter of claim 9 further comprising inherently a processor to selectively activate said test circuit (Malec, figure 1).

Regarding claim 11, the combination of Sanders, Valentine and Malec discloses the transmitter of claim 10 and further discloses a memory associated with said test circuit to store a reference value determined from testing said amplifier via said test circuit, said reference value used to set said compensation term (Valentine, col. 3, lines 38-42).

Allowable Subject Matter

5. Claims 3-8 are objected to as being dependent upon a rejected base claim, but would be allowable (for reasons explained in the previous action) if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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6. Claims 17-26 are allowed for reasons explained in the previous action.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Temica M. Davis whose telephone number is (703) 306-5837. The examiner can normally be reached on Monday-Thursday (alternate Fridays) 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (703) 308-4825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Temica M. Davis
Examiner
Art Unit 2681

September 3, 2004


TEMICA M. DAVIS
PATENT EXAMINER